

TOSHIBA

STEREO CASSETTE DECK

PC-X15

MC-Service



SPECIFICATIONS

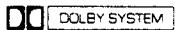
Power Supply:	AC 240V ~, 50 Hz (for U.K. and Australia) AC 220V ~, 50 Hz (for European Countries except the U.K.)	Frequency Response: 25 Hz — 18 kHz for metal tapes at -20 dB 25 Hz — 16 kHz for chrome position tape at -20 dB 25 Hz — 15 kHz for normal tapes at -20 dB
Power Consumption:	14W	Input Jacks: MIC: 0.25mV (600 ohm —10k ohm) LINE: 70mV (50k ohm min.)
Track System:	4-track 2-channel stereo	Output Jacks: LINE: 0.4V (50k ohm) HEADPHONES: 0.25mW (8 ohm)
Recording/Erasure:	AC bias (85 kHz), AC erasure	Main Dimensions (mm): 420(W) x 110(H) x 280(D) (including rubber feet and front panel controls)
Heads:	AP head, and AF erase head	Weight: 4 kg
Motor:	DC servo-motor	Accessories: Head cleaner. 1
Tape Speed:	4.8 cm/sec.	
Fast Forward/	Approx. 80 sec. (C-60)	
Rewind Time:		
Semiconductors:	4 ICs, 17 transistors, 6 diodes	
Wow & Flutter:	0.06% (WTD RMS)	
S/N Ratio:	58 dB with chrome position tape (Line, peak, WTD)	
Dolby NR:	Noise level improved by 5 dB at 1 kHz, and by 10 dB at 5 kHz	

*Design and specifications are subject to change without notice.

TE, TU, AY

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* Noise Reduction System is manufactured under licence from Dolby Laboratories.
 "DOLBY" and the Double-D symbol are Trademarks of Dolby Laboratories Inc.

1. FEATURES

• LED digital peak level meters	• Dolby NR and Recording LED indicators
• Metal tape compatible	• Soft-eject system
• 3 level conversion tape selector	• Review and cueing functions convenient in
• Dolby NR system	finding a particular part of a recording.

2. OPERATING INSTRUCTIONS

FRONT VIEW

[TAPE COUNTER] Tape Counter
Counter Reset Button

To find recorded parts of a tape, make a note of the tape counter reading when recording. The tape counter can be reset to <000> at any time by simply pressing the reset button.

[POWER] Switch
When the POWER switch is pressed <ON>, the level meters light to indicate that the tape deck is ready for use.

[■/△] Stop/Eject Key
All keys except the [II] Pause key are reset and the tape stops when this key is pressed. Pressing this key again opens the cassette compartment.

[●] Record Key
Press this key and the [▶] Play key to record.

[▶] Play Key

[◀◀] Rewind Key
[REVIEW]
Press this key to rewind the tape.
When this key is pressed during playback, the tape is rewound until the key is released (review operation).

[▶▶] Fast-Forward Key
[CUE]
Press this key to advance the tape rapidly.
When this key is depressed during playback, the tape is advanced rapidly until the key is released, making it easy to find a particular piece of music.

[II] Pause Key
To halt tape transport temporarily during either recording or playback, press this key. To start again in the same mode, simply press the PAUSE key again.

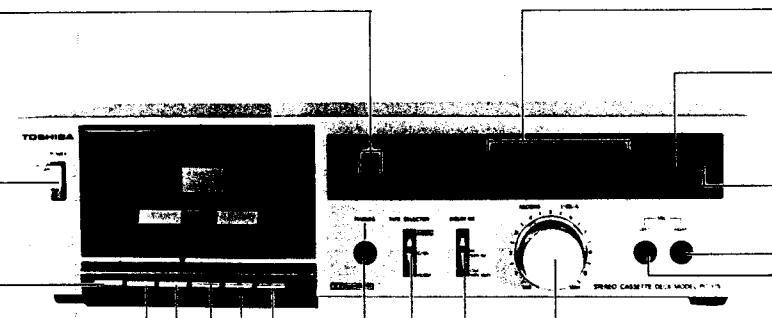


Figure 1

LED Peak Level Meters

These peak meters show the recording level for recording, and the recorded signal level during playback.

[REC] Recording Indicator Lamp
Lights when the [●] Record key is pressed.

[DOLBY NR] DOLBY NR Indicator Lamp
Lights when the [DOLBY NR] switch is <IN>.

[MIC] Microphone Jacks

Insert microphone plugs into these jacks. <L> indicates left channel and <R> right channel. Use a microphone with a 6.3 mm diameter plug (impedance: 600 ohm to 10k ohm).

[RECORD]

Recording Level Adjustment Controls

Adjust the recording level for line and microphone inputs with these controls (outer for left channel and inner for right channel).

[DOLBY NR]

Dolby* NR Switch with MPX Filter
To make Dolby recordings switch to the <IN> position.

During playback of Dolby encoded recordings, the switch may be left in <IN> position. Switch to the <OUT> position to play back or to make recording without Dolby NR.

[TAPE SELECTOR] Switch

Set this switch according to the type of tape being used.

[PHONES] Headphones Jack

Plug a pair of headphones (8 ohm impedance, 6.3 mm diameter plug) into this jack for private headphone listening.

BACK VIEW

DIN REC/P.B.

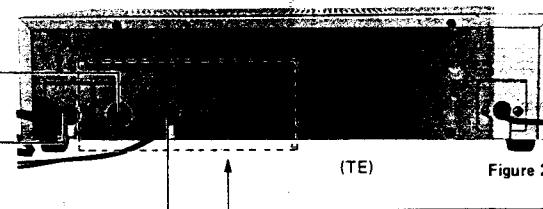


Figure 2

[LINE IN/REC]
Recording Connection Code
Connect this cord to your amplifier for recording.

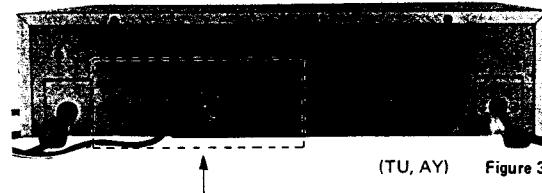
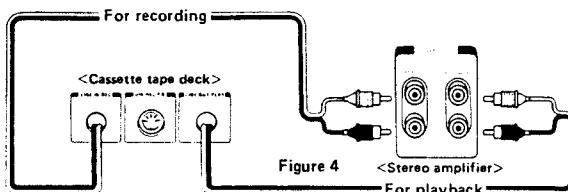


Figure 3

[LINE OUT/PLAY]
Playback Connection Code
Connect this cord to your amplifier for playback.

Connections

■ Connecting to stereo amplifier

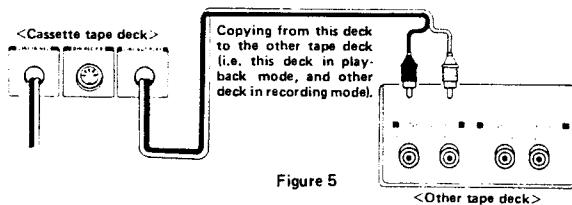


- Connect the connecting cables to the amplifier terminals as shown in the following diagram. Note that the red plugs are used for the right channel.

Note:

- Check that the amplifier power switch is off before making any connections.
- Insert all plugs firmly and securely. Loose connections can result in noise and other failures.

■ Connecting to another tape deck (direct)



- When using another tape deck for dubbing (copying) and editing purposes, connect directly to the rear panel terminals of the other deck as shown in the following diagram. Note, however, that with stereo amplifiers equipped with dubbing facilities, connect via the amplifier according to the amplifier Owner's Manual.

Playback

Operating procedure

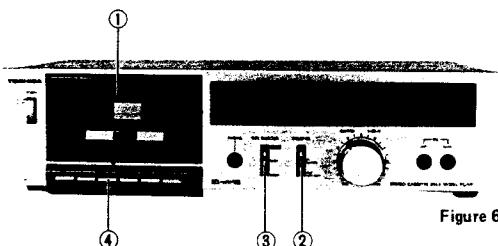


Figure 6

- 1 Insert a recorded cassette tape into the cassette compartment.
- 2 Set the Dolby NR switch to <IN> for Dolby recorded tapes.
- 3 Set to the <OUT> position for the tapes recorded without Dolby NR.
- 4 Also set the [TAPE SELECTOR] switch according to the type of tape. (Refer to Table 1.)
- 5 Press the [▶] Play key.

Table 1

Type of Tape	Position
Metal tape	METAL
Chrome position tape	CrO2
Normal tape	NORM

- Insert the tape with the exposed tape downwards, and the side to be played facing downwards.
- Note that playback will not start if the [▶] Play key is pressed while the [II] Pause key is still depressed.
- The full auto-stop mechanism will stop the tape when the end of the tape is reached during recording, playback, fast forward winding and rewinding. Although the keys will be automatically released, the power will remain on. To switch the power off, press the [POWER] switch.

Recording

■ Recording from phonograph records or tuner

Operating procedure

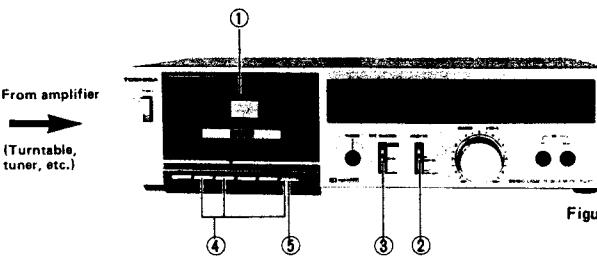


Figure 7

- 1 Insert a tape which still has its erasure prevention tabs.
- 2 Set the [DOLBY NR] switch to the <IN> position for Dolby NR recording.
- 3 Set to the <OUT> position to make recordings without Dolby NR.
- 4 Set the [TAPE SELECTOR] switch to the position corresponding to the type of tape being used. (See Table 1 above.)

■ Live Stereo Recording with Microphones

For live recordings with microphones, plug the microphones (optional) into the [MIC] jacks, then start recording as explained in steps ① to ⑤.

■ Setting the Recording Level

The correct recording level depends considerably on the type of tape used and the programme material being recorded. The correct tape and recording level should be selected to give the best frequency response yet the lowest noise level.

For the following three tape types, the [RECORD] control should be set so that the peak level meters light at the loudest passage of that programme selection:

Table 2

Type of Tape	Peak level meters
Metal tape	+3 dB or +5 dB
Chrome position tape	0 dB or +3 dB
Normal tape	-3 dB or 0 dB

The high-frequency response, in particular, depends considerably on the type of tape and the recording level. Metal tape, for instance, provides better high-frequency response than normal tape, thus giving much better reproduction of higher pitched instruments and voices. This is illustrated in Fig. 8.

- 4 To place the deck record standby mode, press the [II] Pause key, then press the [●] Record and [▶] Play keys. Adjust to the correct recording level on the level meters.
- 5 Press the [II] Pause key once again to start recording.

For the same type tape, there is better higher-frequency response at lower recording as shown in Fig. 9.

Therefore to record programme material which contains considerable high-frequency sound, set the recording level somewhat lower. The level meter on this deck is an electronic "digital" indicator, which displays the peaks of the signal, in red over 0dB and in green below. This allows very precise setting of the recording level.

The Dolby mark and the indicate the Dolby and calibration positions, respectively. The is for use when the tape deck is connected to an . The is Toshiba's new noise reduction and dynamic range expansion system.

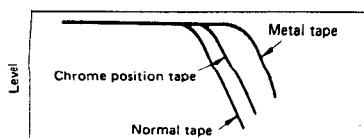


Figure 8 Frequency Response Curves for Different Types of Tape

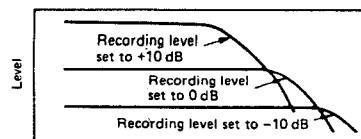


Figure 9 High-frequency response (Hz) Frequency Response Curves at Different Recording Levels

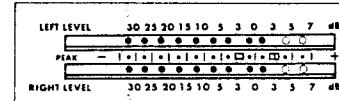


Figure 10

Dolby* System

- The Dolby noise reduction system suppresses tape noise (500 Hz or above) and improves the signal-to-noise ratio.
- The principle of Dolby NR system is to increase the recording level of mid to high-frequency signals. This increases the difference between the signal level and the noise level. On playback the signal level is reduced to its original level, simultaneously suppressing tape noise.
- Noise reduction system manufactured under license from Dolby Laboratories. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories.

Simple Troubleshooting

- No sound →
 - Check connections.
 - Also check amplifier selector position.
- Tape fails to move →
 - Has the [II] Pause key been pressed?
- Not possible to put into recording mode →
 - No tape in the cassette compartment?
 - Erasure prevention tab in the back edge of cassette tape already broken off?
- Tape stops almost straight away after pressing a transport mode key →
 - End of tape has been reached, resulting in automatic stop.
- Fluttering of "gravel voice" tendencies in the sound →
 - Check for dirt building up on the head, pinch roller and capstan.
 - Check whether the tape is rather old and shows signs of stretching etc.

Warning

- Do not place the cassette deck:
 - in places where there is oily smoke or where humidity is high,
 - near a stove where the temperature is above 35°C,
 - near an amplifier or other electronic appliances where hum is emitted,
 - on an unstable support such as a cardboard box,
 - in a dusty place,
 - in a place exposed to direct sunlight.
- Insert the power plug fully to prevent children from touching an exposed portion. When removing the power plug, pull the plug not the cord.
- Make sure that small objects such as hairpins, needles, etc. are not dropped into the cassette deck, be especially careful with children in this respect.
- Do not use the cassette deck if it gets wet for any reason, since it may give you an electric shock. If the deck gets wet, consult the shop where you purchased it.
- If you notice any abnormality or fault, immediately switch off the deck at the POWER switch and pull out the power plug. Then consult the shop where you purchased the cassette deck.

3. DISASSEMBLY INSTRUCTIONS

Top Cover and Jack Plate Removal

1. Remove four screws (A) from each side of Top Cover. (See Figure 11).
2. Remove two screws (B) from Jack Plate. (See Figure 12).
3. Lifting the Top Cover upright, pull it back wards and the Top Cover and Jack Plate can be removed out.

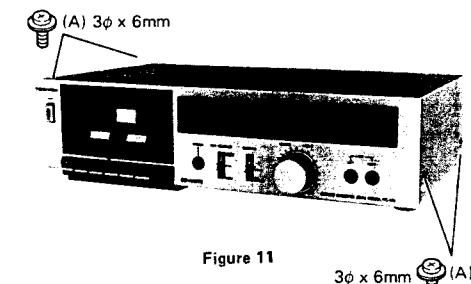


Figure 11
(A) 3φ x 6mm
(B) 3φ x 6mm (A)

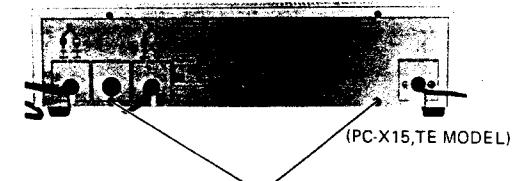


Figure 12
(B) 3φ x 8mm

Bottom Cover Removal

1. Remove two screws (C) from the bottom plate. (See Figure 13).
2. Bottom Cover can be removed from the unit.
3. Follow this instructions, then adjustments can be done without removing the bottom plate. (See Figure 14).

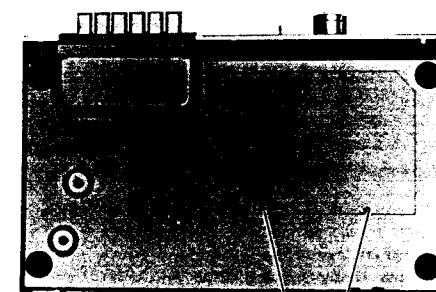


Figure 13
(C) 3φ x 6mm

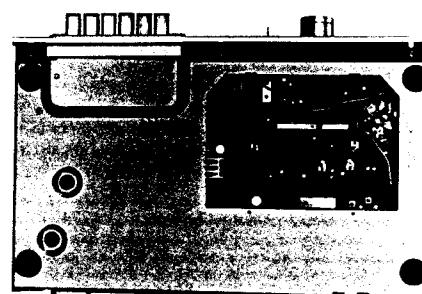


Figure 14

Cassette Cover Removal

1. Remove the top cover.
2. Remove one screw (D) which holds the door lever and the panel then Cassette Cover can be removed. (See Figure 15, 16).



Figure 16

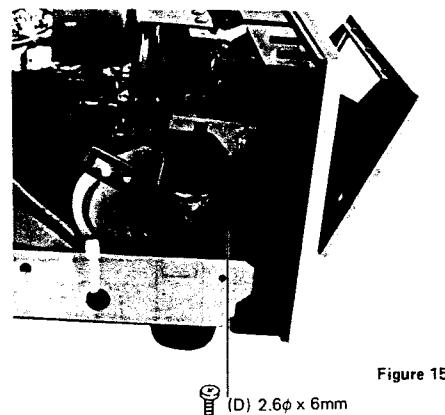


Figure 15

Mechanism Assembly Removal

1. Remove cassette cover.
2. Remove four screws (E) from Front panel then mechanism assembly can be removed. (See Figure 17).
3. Remove one screw (F) and one washer (G) from Front panel.

Front Panel Removal

1. Remove the top cover and mechanism assembly.
2. Remove the two knobs (H). (See Figure 19).
3. Remove the three screws (I). (See Figure 18).
4. Front panel can be removed from unit.

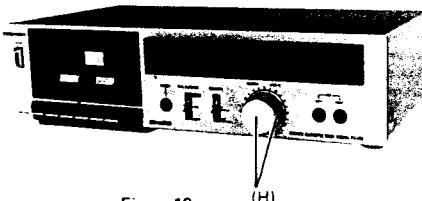


Figure 19

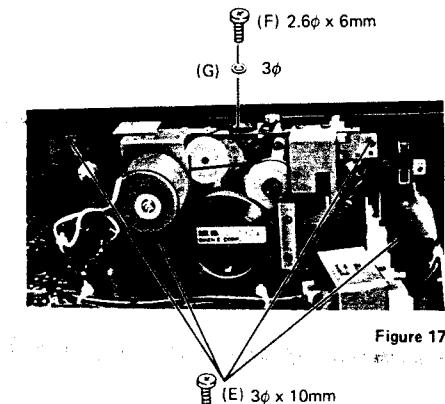


Figure 17

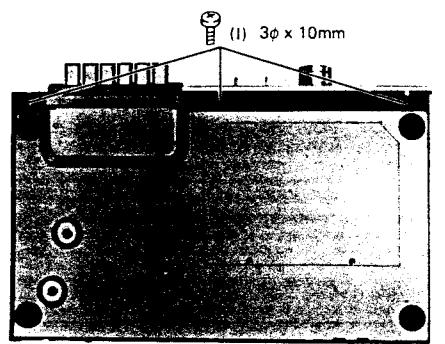


Figure 18

4. MOTOR REPLACEMENT**1. Motor Removal**

Put a soldering iron on the upper part of the pulley to melt an adhesive agent and pull the motor pulley upward strongly.

2. Motor Installation

- (1) Make the gap (2.5mm) between the motor and the motor pulley and apply an adhesive agent on the top of motor pulley.
- (2) Soak the adhesive agent by moving the pulley up and down and then fix the motor pulley by keeping 2.5mm gap for 1 minute.

In this case, take care not to stick an adhesive agent to the part (A).

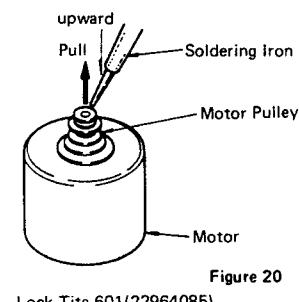


Figure 20

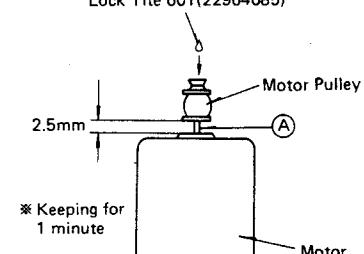


Figure 21

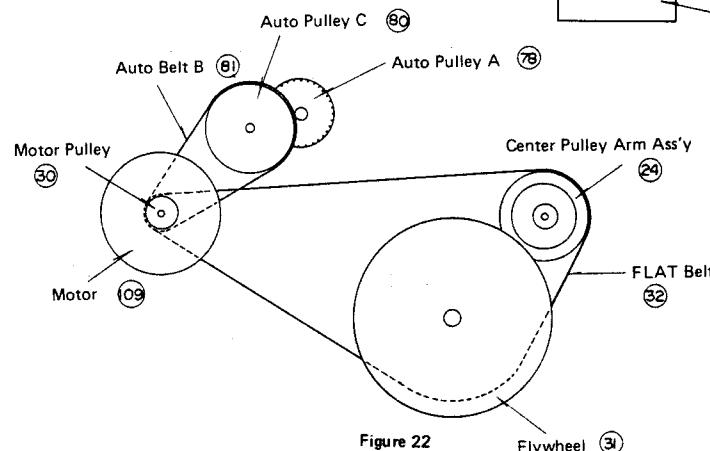
(LOWER)

Figure 22

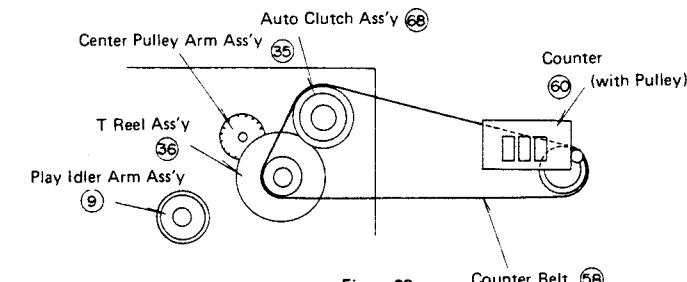
(UPPER)

Figure 23

5. BLOCK DIAGRAM

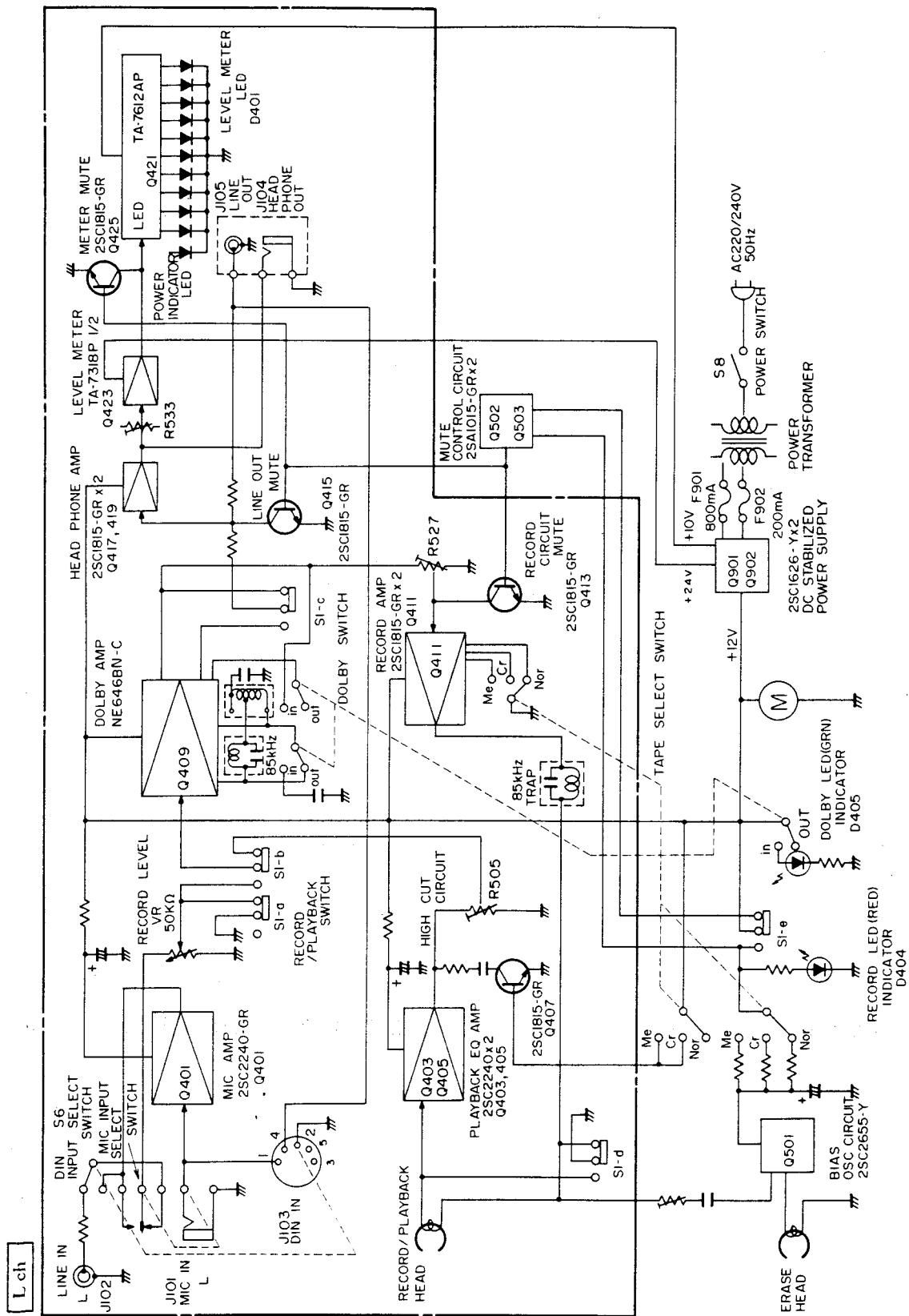


Figure 24

Notes:

(1) This block diagram is for "TE" model.
The block diagram for "TU, AY" must be selected J103 Din Jack (includes S6) and it's associating circuit lines on this diagram.
(2) Right channel block diagram is the same as left channel's. (Symbol numbers are different).

6. ADJUSTMENTS

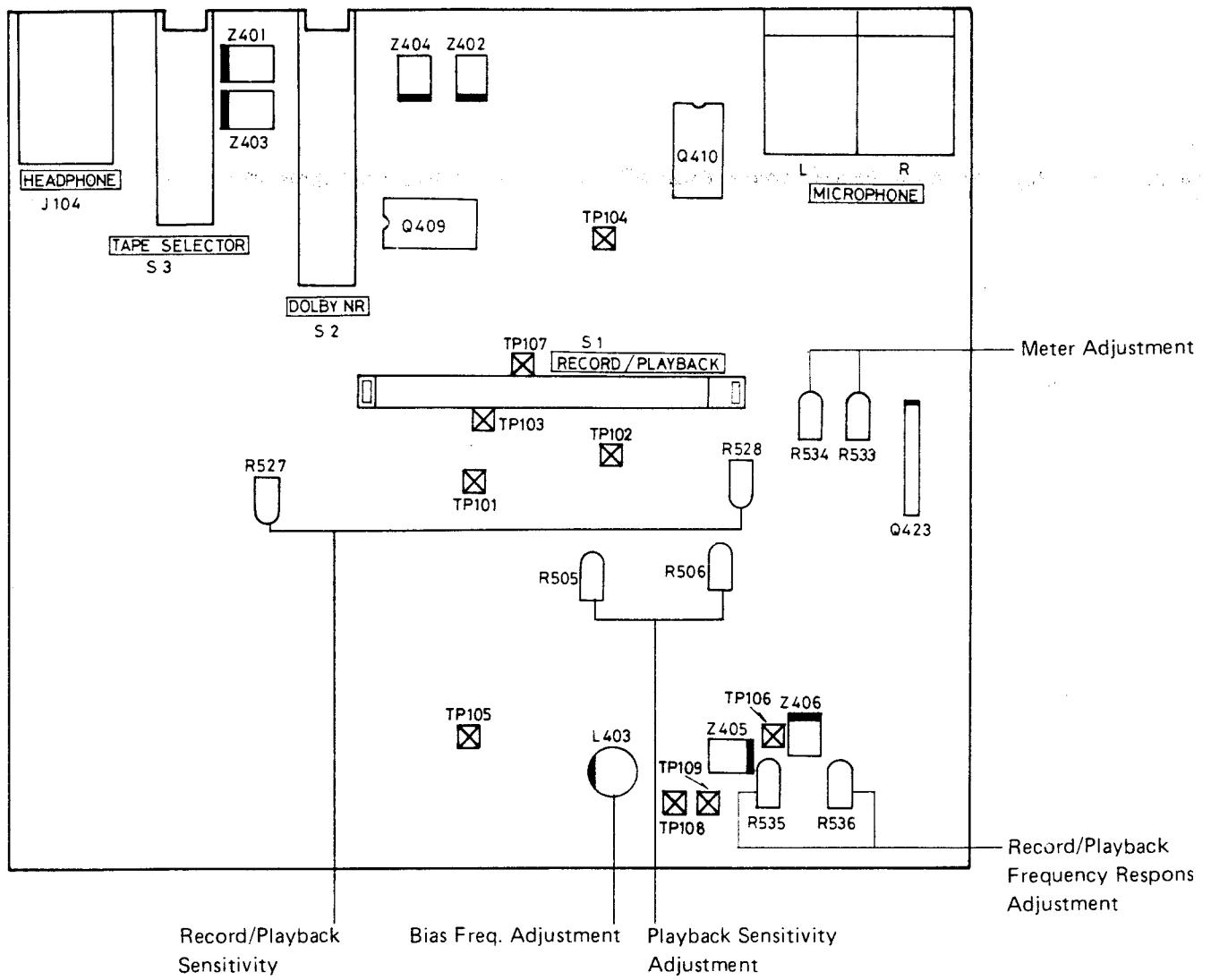


Figure 25

ADJUSTMENT PROCEDURES

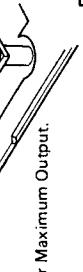
No.	Description	Nominal Specs	Test Tape	Volume Control REC	Switch Position TAPE	Adjustment Points DOLBY	Test Points	Test Freq. ATT	Remarks
1	Head Azimuth Adjustment	MAX.	MTT-111	NOR	OUT	Head Azimuth Adjustment Screw	LINE OUT		MTT-1114, at 10 kHz. Adjust for maximum output. (After adjustment, apply a lock paint on the screw)
2	Tape Speed Measurement	3000 ±30 Hz MTT-111		NOR	OUT	Semi-fixed resistor in the Motor	LINE OUT		Adjust for 3000 ±15 Hz unless specified value is obtained at tape end.
3	Playback Sensitivity Adjustment	580 ±10mV MTT-150		NOR	OUT	R505 R506	TP103 TP104		MTT-150, at 400 Hz. Adjust for 580mV at test point in play mode.
4	Playback Frequency Response Measurement (Normal)	+3 dB MTT-215C		NOR	OUT		LINE OUT		Read level difference at 10 kHz to 315 Hz.
5	Playback Frequency Response (Chrome)	-4 ± 2 dB MTT-215C		NOR	OUT		LINE OUT		Change for 10 kHz Normal tape
6	Output Noise Level	Under 3.0mV	Blank Tape	NOR	OUT		LINE OUT		
7	Bias Freq. Adjustment	85 ±0.5 kHz Blank Tape		NOR	OUT	L403	TP109		Adjust bias OSC coil for 85 kHz in record mode.
8	Line Input Level Adjustment	600 ±10mV	Blank Tape	Adjustment	NOR	REC Volume-L REC Volume-R	LINE OUT	400 Hz -17 dB	Adjust REC-VR (L/R) for line output 600mV.
9	Meter Adjustment	Meter +4 dB		Adjustment	NOR	OUT	R533 R534	LED Meter	400 Hz -17 dB
10	Record Playback Frequency Response Adjustment	0 +2 dB -0 dB AC-512		Adjustment	CrO ₂	OUT	R535 R536	LINE OUT	400 Hz -4.1 dB
11	Record/Playback Sensitivity Adjustment	0 ±1 dB	AC-512	Adjustment	CrO ₂	OUT	R527 R528	LINE OUT	400 Hz -21 dB
Measurement Condition		Power Supply TE: 220V TU, AY: 240V • Input: 0 dB = 1V rms • LINE IN (Input Impedance): 600 ohm • LINE OUT (Load Impedance): 47K ohm • Test Point Load Impedance: No Load							

RECORD/PLAYBACK HEAD ADJUSTMENT

TEST EQUIPMENTS

1. VTVM (Vacuum Tube Voltmeter)
2. Signal Generator
3. Resistance Attenuator
4. Screwdriver
5. Test Tapes:
MTT-114 (10 kHz)
MTT-150 (400 Hz)
AC-511 (CHROME TAPE)

Adjust for Maximum Output.



Head Azimuth Adjusting Screw

Test Tape (MTT-50)

Head (R)

Head (L)

7. ELECTRICAL PARTS LOCATIONS

TE

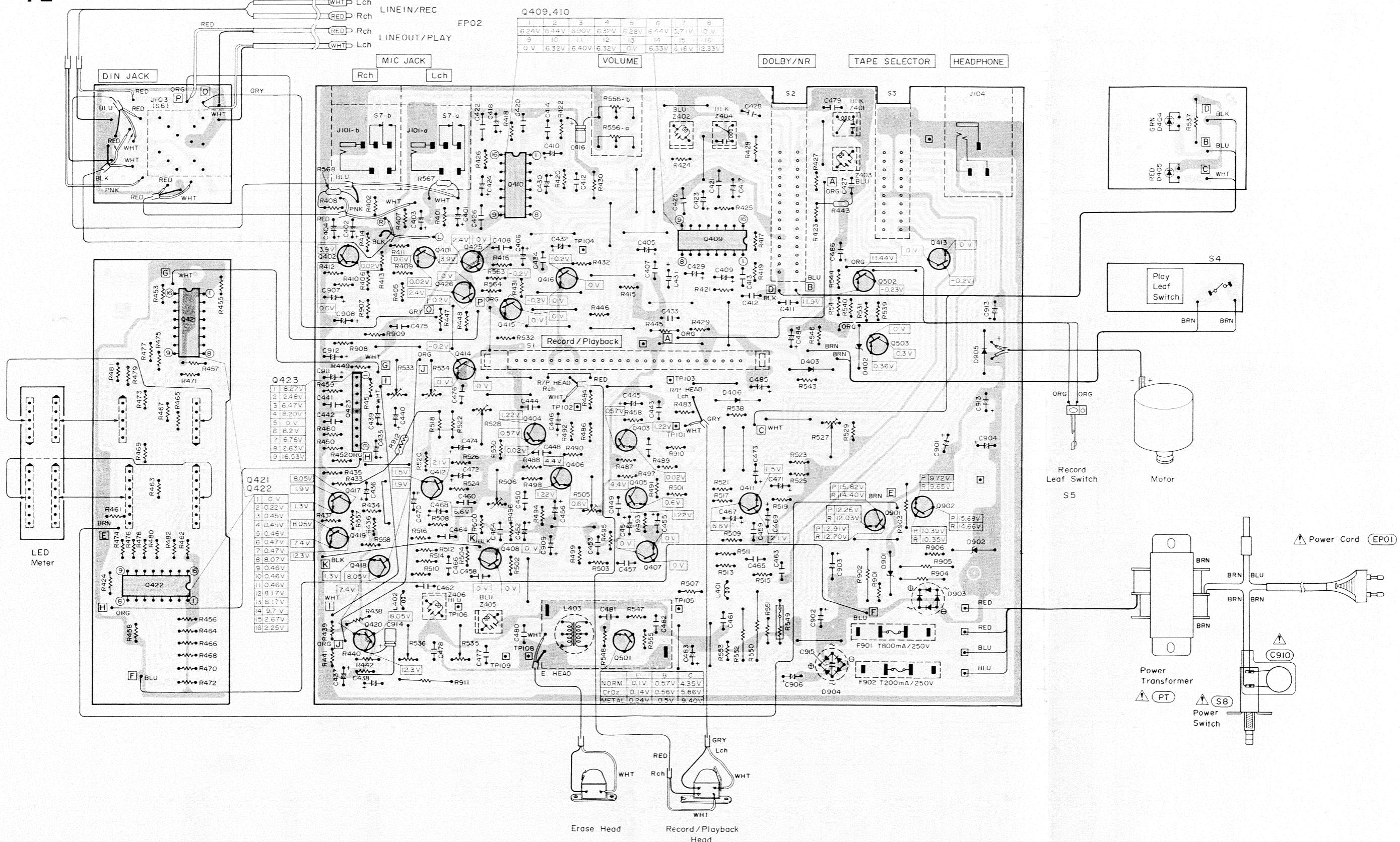
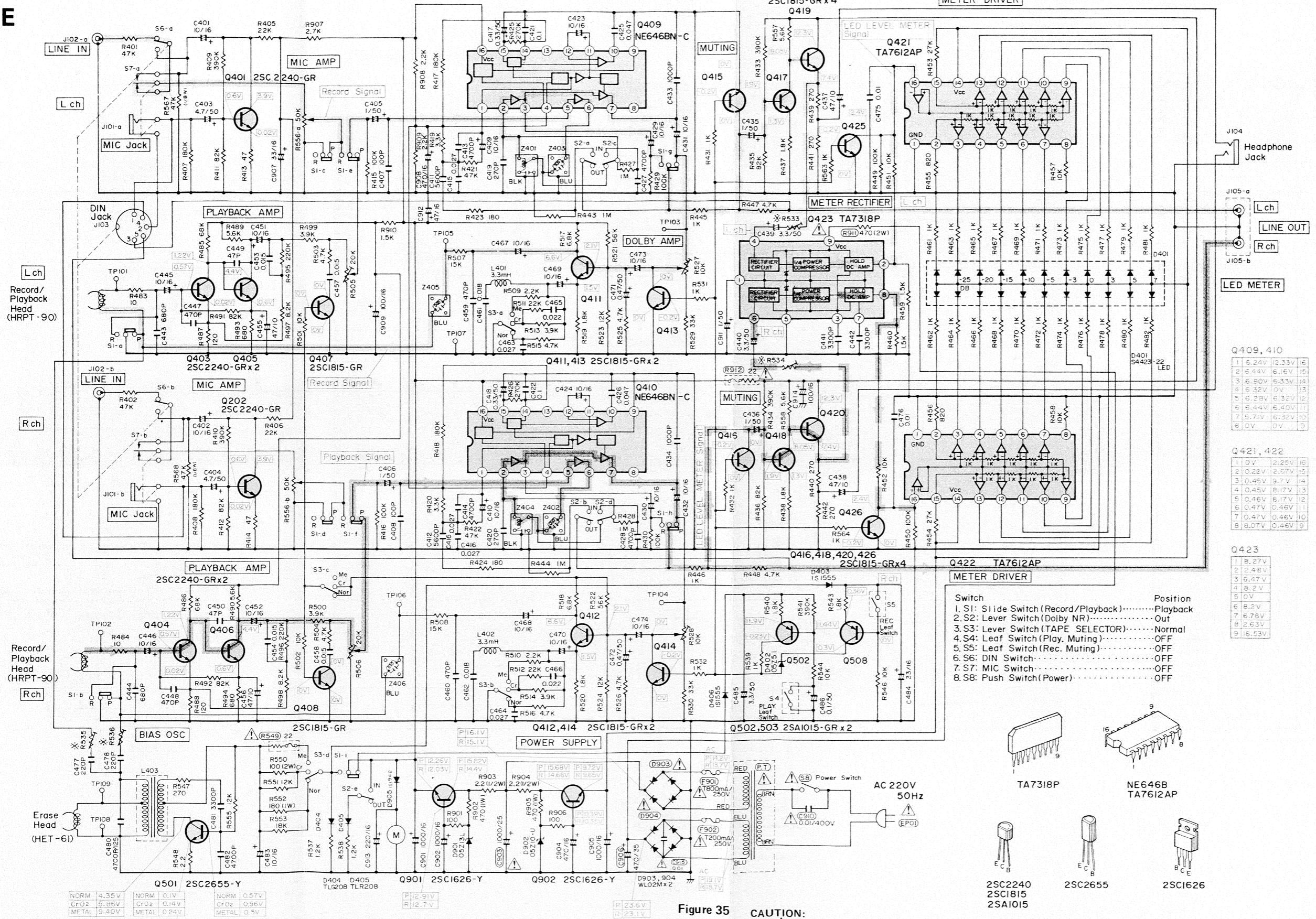


Figure 34

8. SCHEMATIC DIAGRAM



Figure

35 CAUTION

35 CAUTION: The  mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

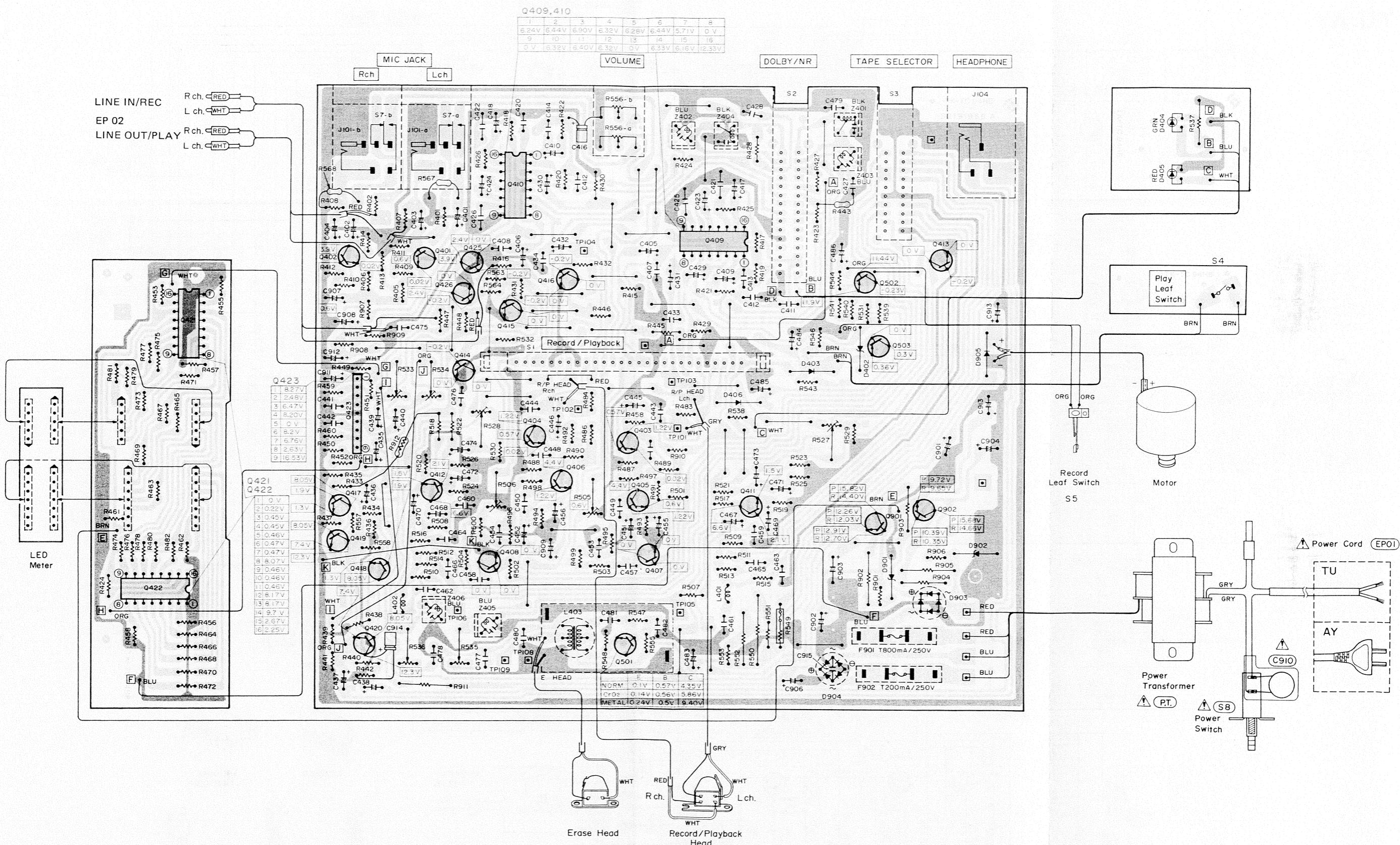
Note: For parts marked “*”, refer to Parts List on page 24.

— 4 —

TU.AY

PC-X15 PC-X15

9. ELECTRICAL PARTS LOCATIONS



10. SCHEMATIC DIAGRAM

TU.AY

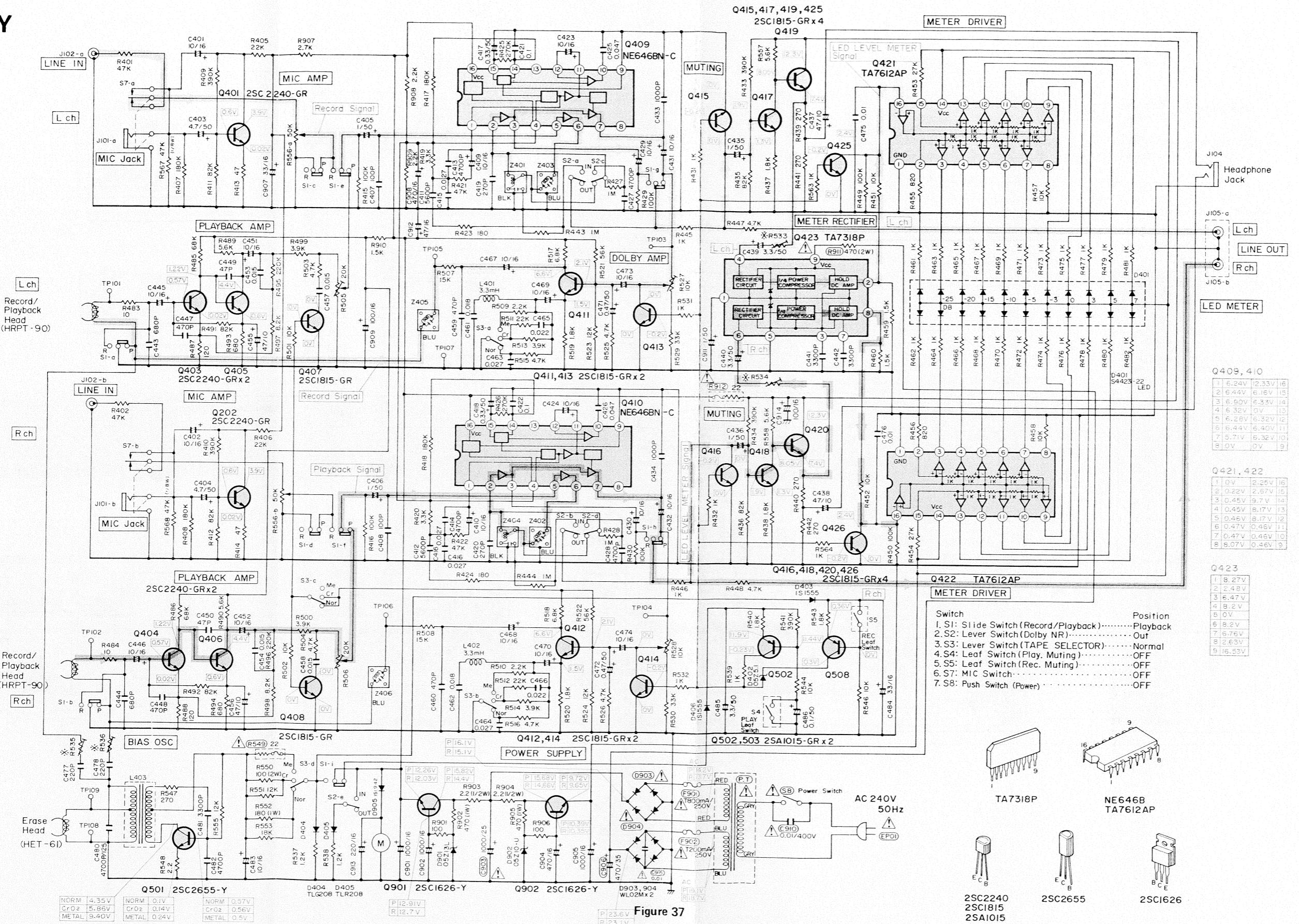


Figure 37

Note: For parts marked “*”, refer to Parts List on page 24.

11. OPERATING INSTRUCTIONS (MECHANISM)

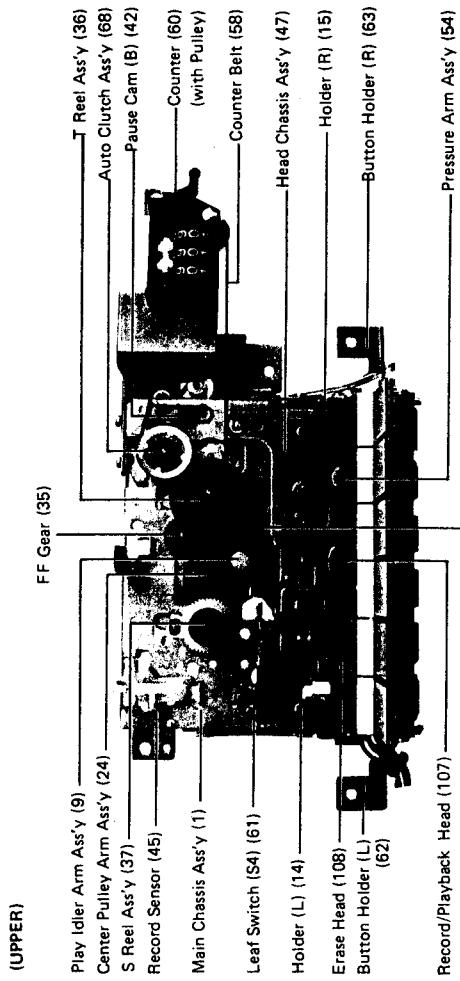
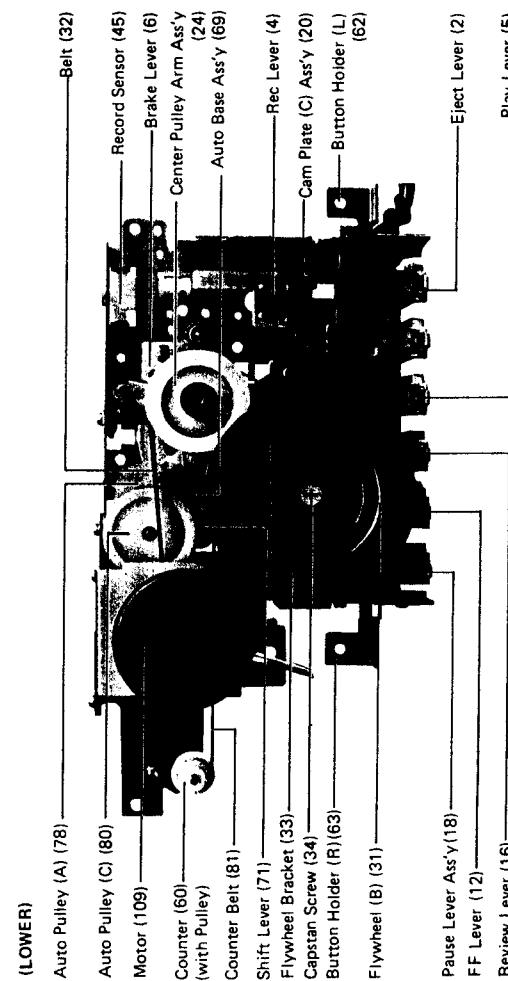


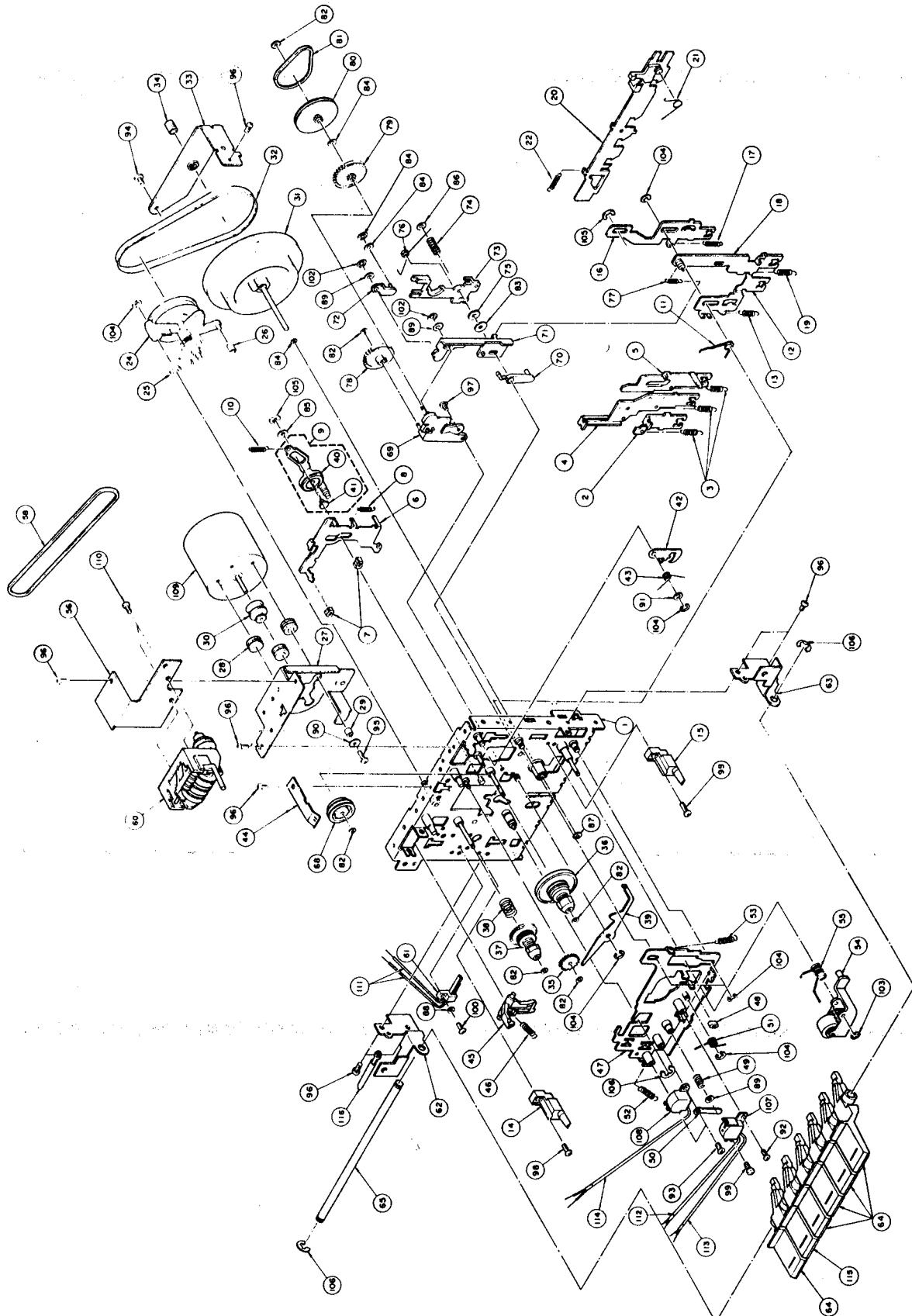
Figure 38



Note: The numbers between parenthesis show Symbol No.

Figure 39

12-1. MECHANISM PARTS LOCATIONS



NOTE: Parts excluded in the parts list are not available as replacement parts.

Figure 40

12-2. MECHANISM PARTS LIST

Symbol No.	Part No.	Description
1	25791374	Main Chassis Ass'y
3	25776335	Spring, Lever B
7	25761465	Shoe, Brake
8	25776336	Spring, Brake
9	25791375	Play Idler Arm Ass'y
10	25776337	Spring, Idler Arm
11	25773566	Spring, FF Tension
13	25776344	Spring, FF Lever
14	22753101	Holder (L)
15	22753102	Holder (R)
17	25776345	Spring, Rew Lever
19	25776346	Spring, Pause Lever
21	25773567	Spring, Auto Arm
22	25776343	Spring A, Cam Plate
24	25791376	Center Pulley Arm Ass'y
25	25773568	Spring, Center Arm
26	25728162	Collar, Center Arm
28	25761466	Cushion, Motor
30	25758098	Pulley, Motor
31	25717490	Flywheel B
32	25755503	Belt, FLAT 70 ϕ x 3.5 ϕ x 0.6t
34	25783243	Screw, Capstan
35	25756257	Gear, FF
36	25712397	T Reel Ass'y
37	25754389	S Reel Ass'y
38	25777060	Spring, Back Tension
43	25773562	Spring, Pause Cam
44	25779191	Spring, Pack Clamp
45	25782445	Record Sensor
46	25776338	Spring, Record Sensor
47	25741870	Head Chassis Ass'y
48	25761467	Spacer, Head Chassis
49	25777061	Spring, Azimuth
51	25773563	Spring, Panel Tension
52	25776339	Spring, Panel (L)
53	25776340	Spring, Panel (R)
54	25717491	Pressure Arm Ass'y
55	25773564	Spring, Pressure Arm
58	25755504	Belt, Counter Square, 6.5 ϕ (0.9 ϕ)
60	25873247	Counter
61	22195851	Switch, Leaf (PLAY MUT.) (S4)
64	25782436	Button, PLAY/FF/REW/- STOP/PAUSE
68	25713549	Auto Clutch Ass'y
69	25783244	Auto Base Ass'y
70	25782446	Auto Arm B
71	25782447	Lever, Shift
72	25782448	Shift Arm

Symbol No.	Part No.	Description
73	25782449	Sensor Arm B
74	25777062	Spring, Sensor Arm B
75	25762410	Felt, Clutch
76	25773565	Spring, Sensor Arm Tension
77	25776342	Spring, Auto Stop
78	25756258	Auto Pulley A
79	25756259	Auto Pulley B
80	25713550	Auto Pulley C
81	25755505	Belt, Auto B, Square, 30.5 ϕ (1 ϕ)
82	22703321	Washer, Polyslider, 1.6 ϕ
83	22703322	Washer, Polyslider, 1.9 ϕ
84	22703323	Washer, Polyslider, 2.1 ϕ
85	22703324	Washer, Polyslider, 4.1 ϕ
86	22703325	Washer, Nylon, 1.55 ϕ
87	22703326	Washer, Nylon, 1.9 ϕ
88	22703318	Washer S, Plain, 2 ϕ
90	22703281	Washer L, Plain, 2.6 ϕ
91	22703269	Washer L, Plain, 3 ϕ
92	22701270	Screw (PAN), 2 ϕ x 4mm
93	22701290	Screw (PAN), 2 ϕ x 6mm
94	22707151	Screw (BID), 2.6 ϕ x 5mm
95	22701295	Screw (PAN), 2.6 ϕ x 8mm
96	22701386	Screw (PAN), 2.6 ϕ x 4mm
99	22707505	Screw (BID), 2 ϕ x 6mm
100	22707298	Screw (BID), 2 ϕ x 6mm, Tapping
102	22703320	Nut, Push 2 ϕ
103	22703115	E Ring, 1.5 ϕ
104	22703119	E Ring, 2.5 ϕ
105	22703279	E Ring, 3 ϕ
106	22703280	E Ring, 4 ϕ
107	22217377	Head, Record/Playback, HRPT-90
108	22218243	Head, Erase, HET-61
109	22125696	Motor, DC12V, 2400RPM
110	22707452	Screw (BID), 3 ϕ x 5mm
115	25782437	Button, REC
117	25762408	Spacer, Head

MC-Service

13-1. CABINET PARTS LOCATIONS

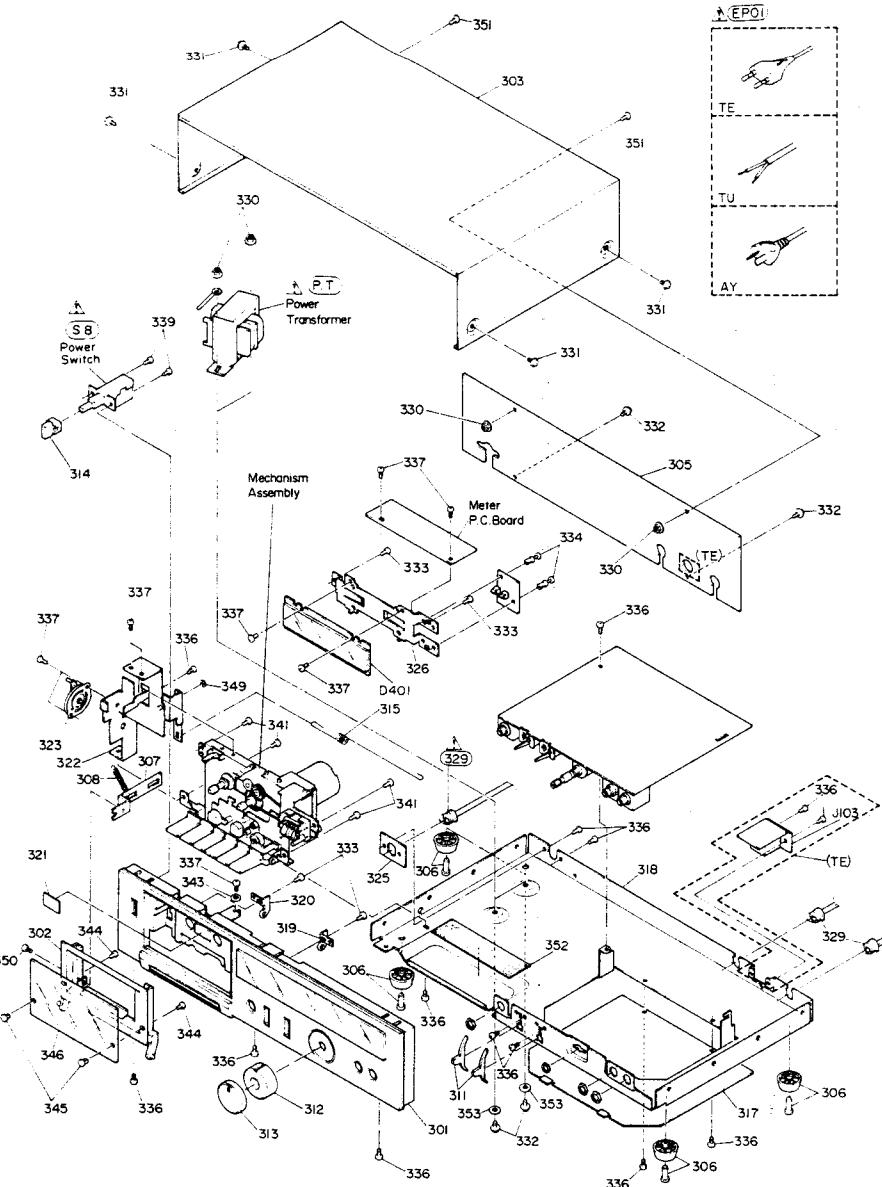


Figure 41 NOTE: Parts excluded in the parts list are not available as replacement parts.

13-2. CABINET PARTS LIST

Symbol No.	Part No.	Description
301	25819473	Front Panel Ass'y
302	25838737	Case Ass'y, Cassette
303	25838683	Top Cover
305	25838689	Jack Plate (TE)
305	25838732	Jack Plate (TU, AY)
306	22828048	Leg
307	25748384	Lever, Door
308	25776185	Spring
311	25837549	Knob, Lever
312	25837469	Knob, REC-R
313	25837468	Knob, REC-L
314	22824350	Knob, Power
315	25773552	Spring, Record Link
321	25824247	Reflector
323	25858579	Damper Ass'y
329	25845528	Bush, Cover
330	22702187	Nut
331	22707522	Screw (FLDT), 3φ x 6mm
332	22707456	Screw (FLDT), 3φ x 8mm
333	22701326	Screw (BID), 3φ x 8mm
		Tapping
334	22705022	Rivet, Plastic, 3φ x 5.5mm
336	22707445	Screw (DTBID), 3φ x 6mm
337	22707366	Screw (DTBID), 2.6φ x 6mm
338	22707521	Screw (FLDT), 3φ x 6mm
339	22707301	Screw (BID), 2.6φ x 8mm, Tapping
341	22707165	Screw (BID), 3φ x 10mm, Tapping
343	22703269	Washer, 3φ
344	22707317	Screw (BID), 2.6φ x 5mm, Tapping
345	25864537	Bush
346	25838685	Cover, Cassette
350	22707323	Screw (BID), 2.6φ x 8mm
351	22707163	Screw (BID), 3φ x 10mm

14. PARTS LIST

CAUTION:

The mark, the symbol No. circled with rectangle in the schematic diagram and the shaded area in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list.

Symbol No.	Part No.	Description
TRANSISTORS, IC'S & DIODES		
Q401, 402 403, 404 405, 406		Transistor, 2SC2240-GR
Q407, 408 Q409, 410	22114681	Transistor, 2SC1815-GR IC, NE646BN-C
Q411, 412 413, 414 415, 416 417, 418 419, 420		Transistor, 2SC1815-GR IC, TA7612AP
Q421, 422 Q423 Q425, 426		IC, TA7318P
Q501 Q502, 503 Q901, 902		Transistor, 2SC2655-Y Transistor, 2SA1015-GR
D401 D402 D403 D404 D405 D406 D901 D902		Transistor, 2SC1626-Y Diode, S4423-22LED Diode, 05Z5.1 Diode, 1S1555V Diode, TLG208 (GRN) Diode, TLR208 (RED) Diode, 1S1555V Diode, 05Z13L Diode, 05Z10-U
D903, 904 D905	22115485	Diode, 05Z10-U Diode, 1S1942
ELECTRICAL PARTS		
L401, 402 L403	22232249 22232248	Coil, 3.3mH Bias Oscillator Coil
S1 S2 S3 S5	22195834 22195474 22195362 22195833	Switch, Slide (REC/PLAY) Switch, Lever (NR) Switch, Lever (TAPE) Switch, Leaf (REC MUT.)
S6	22195686	Switch Push (POWER)
J101a, b J103	22163874 22167908	Jack, Microphone (S7) Jack, DIN 5P (S6) TE

Symbol No.	Part No.	Description
CAPACITORS		
J104	22163875	Jack, Headphone
Z401, 404	22153117	Filter, Dolby, BLK
Z402, 403	22153116	Filter, Dolby, BLU
P901	22144442	Fuse, 1.00mA/250V
P902	22144443	Fuse, 1.20mA/250V
EP01	22176286	Cord, Power (TU)
EP01	22176536	Cord, Power (TU)
EP01	22176588	Cord, Power (AY)
EP02	22170442	Cord, US PIN
EP03	22144441	Holder, Fuse
RESISTORS		
C401, 402 C403, 404 C405, 406	22485100 22488479 22488109	EL, 10mfd, 16V, M EL, 4.7mfd, 50V, M EL, 1mfd, 50V, M
C407, 408 C409, 410	22349101 22485100	CD, 100pF, 50V, K EL, 10mfd, 16V, M
C411, 412	22371562	MY, 5600pF, 50V, J
C413, 414	22371472	MY, 4700pF, 50V, J
C415, 416	22371273	MY, 0.027mfd, 50V, J
C417, 418	22488338	EL, 0.33mfd, 50V, M
C419, 420	22349271	CD, 270pF, 50V, K
C421, 422	22371104	MY, 0.1mfd, 50V, J
C423, 424	22485100	EL, 10mfd, 16V, M
C425, 426	22371473	MY, 0.047mfd, 50V, J
C427, 428	22371472	MY, 4700pF, 50V, J
C429, 430	22485100 431, 432 C433, 434	EL, 10mfd, 16V, M CD, 1000pF, 50V, K EL, 1mfd, 50V, M
C435, 436	22488109	EL, 1mfd, 50V, M
C437, 438	22483470	EL, 47mfd, 10V, M
C439, 440	22488339	EL, 3.3mfd, 50V, M
C441, 442	22371332	MY, 3300pF, 50V, J
C443, 444	22349681	CD, 680pF, 50V, K
C445, 446	22485100	EL, 10mfd, 16V, M
C447, 448	22349471	CD, 470pF, 50V, K
C449, 450	22362470	CD, 47pF, 50V, K
C451, 452	22485100	EL, 10mfd, 16V, M
C453, 454	22371153	MY, 0.015mfd, 50V, J
C455, 456	22483470	EL, 47mfd, 10V, M

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
C457, 458	22371153	MY, 0.015mfd, 50V, J	R421, 422	22555473	47K ohm
C459, 460	22349471	CD, 470pF, 50V, K	R423, 424	22555181	180 ohm
C461, 462	22371183	MY, 0.018mfd, 50V, J	R425, 426	22555274	270K ohm
C463, 464	22371273	MY, 0.027mfd, 50V, J	R427, 428	22555105	1M ohm
C465, 466	22371223	MY, 0.022mfd, 50V, J	R429, 430	22555104	100K ohm
C467, 468	22485100	EL, 10mfd, 16V, M	R431, 432	22555102	1K ohm
469, 470			R433, 434	22555394	390K ohm
C471, 472	22488478	EL, 0.47mfd, 50V, M	R435, 436	22555823	82K ohm
C473, 474	22485100	EL, 10mfd, 16V, M	R437, 438	22555182	1.8K ohm
C475, 476	22349103	CD, 0.01mfd, 50V, K	R439, 440	22555271	270 ohm
C477, 478	22349221	CD, 220pF, 50V, K	441, 442		
C480	22380176	PS, 4700pF, 125V	R443, 444	22555105	1M ohm
C481	22371332	MY, 3300pF, 50V, J	R445, 446	22555102	1K ohm
C482	22371472	MY, 4700pF, 50V, J	R447, 448	22555472	4.7K ohm
C483	22485100	EL, 10mfd, 16V, M	R449, 450	22555104	100K ohm
C484	22485330	EL, 33mfd, 16V, M	R451, 452	22555103	10K ohm
C485	22488339	EL, 3.3mfd, 50V, M	R453, 454	22555273	27K ohm
C486	22488108	EL, 0.1mfd, 50V, M	R455, 456	22555821	820 ohm
C901, 902	22485102	EL, 1000mfd, 16V, M	R457, 458	22555103	10K ohm
C903	22486102	EL, 1000mfd, 25V, M	R461, 462	22555102	1K ohm
C904	22485471	EL, 470mfd, 16V, M	463, 464		
C905	22485102	EL, 1000mfd, 16V, M	465, 466		
C906	22487571	EL, 470mfd, 35V, M	467, 468		
C907	22485330	EL, 33mfd, 16V, M	469, 470		
C908	22483471	EL, 470mfd, 10V, M	471, 472		
C909	22485101	EL, 100mfd, 16V, M	473, 474		
C910	22349147	CD, 0.01mfd, 400V	475, 476		
C911	22488109	EL, 1mfd, 50V, M	477, 478		
C912	22485470	EL, 47mfd, 16V, M	479, 480		
C913	22485221	EL, 220mfd, 16V, M	481, 482		
C914	22485101	EL, 100mfd, 16V, M	R483, 484	22555100	10 ohm
C915	22349113	CD, 0.01mfd, 50V, K	R485, 486	22555683	68K ohm
			R487, 488	22555121	120 ohm
			R489, 490	22555562	5.6K ohm
			R491, 492	22555823	82K ohm
			R493, 494	22555681	680 ohm
			R495, 496	22555224	220K ohm
			R497, 498	22555822	8.2K ohm
			R499, 500	22555392	3.9K ohm
			R501, 502	22555103	10K ohm
			R503, 504	22555472	4.7K ohm
			R505, 506	22658493	20K ohm, Semi-fixed Variable
			R507, 508	22555153	15K ohm
			R509, 510	22555222	2.2K ohm
			R511, 512	22555223	22K ohm
			R513, 514	22555392	3.9K ohm
			R515, 516	22555472	4.7K ohm
			R517, 518	22555682	6.8K ohm
			R519, 520	22555182	1.8K ohm
			R521, 522	22555563	56K ohm
			R523, 524	22555123	12K ohm

All resistors are carbon film 1/4W, $\pm 5\%$, unless otherwise noted.

K = 1000, M = 1000000

Symbol No.	Part No.	Description
R525, 526	22555472	4.7K ohm
R527, 528	22658492	10K ohm, Semi-fixed Variable
R529, 530	22555333	33K ohm
R531, 532	22555102	1K ohm
R537, 538	22555122	1.2K ohm
R539	22555102	1K ohm
R540	22555182	1.8K ohm
R541	22555394	390K ohm
R543	22555182	1.8K ohm
R544	22555103	10K ohm
R546	22555103	10K ohm
R547	22555271	270 ohm
R548	22555229	2.2 ohm
R549	22500176	22 ohm, Fusible
R550	22570307	100 ohm, 2W, Metal Oxidized Film
R551	22545122	1.2K ohm
R552	22570265	180 ohm, 1W, Metal Oxidized Film
R553	22555182	1.8K ohm
R555	22555123	12K ohm
R556	22624426	50K ohm, A, Variable, Rec Level
R557, 558	22555562	5.6K ohm
R563, 564	22555102	1K ohm
R567, 568	22540210	47K ohm, 1/8W
R901	22555101	100 ohm
R902	22570270	470 ohm, 1W, Metal Oxidized Film
R903, 904	22547229	2.2 ohm, 1/2W
R905	22570270	470 ohm, 1W, Metal Oxidized Film
R906	22555101	100 ohm
R907	22555272	2.7K ohm
R908, 909	22555222	2.2K ohm
R910	22555152	1.5K ohm
R911	22570315	470 ohm, 2W, Metal Oxidized Film
R912	22500176	22 ohm, Fusible
* R533,534	22658494	50K ohm, Semi-fixed Variable (#1 ~ 2000) TE
	22658495	100K ohm, Semi-fixed Variable (= 2001 ~) TE
	22658494	50K ohm, Semi-fixed Variable (#1 ~ 1000) TU
	22658495	100K ohm, Semi-fixed Variable (#1001 ~) TU
	22658495	100K ohm, Semi-fixed Variable (#1 ~) AY
* R535,536	22658495	100K ohm, Semi-fixed Variable (#1 ~ 2000) TE

Symbol No.	Part No.	Description
* R535,536	22658494	50K ohm, Semi-fixed Variable (=2001 ~) TE
	22658495	100K ohm, Semi-fixed Variable (=1 ~ 1000) TU
	22658494	50K ohm, Semi-fixed Variable (=1001 ~) TU
	22658494	50K ohm, Semi-fixed Variable (=1 ~) AY
ACCESSORIES		
AC01	22903035	Owner's Manual
AC02	22990374	Cleaner, Head